ROYPOW | ULTRA DRIVE

Intelligent DC Charging Alternator Solution

by ULTRADRIVE Technology™

Benefits

✔ Wide Compatibility
Compatibility with rated 44.8V/48V/51.2V $LiFePO_4$ and other chemistries battery

✔ Rapid Charging
Up to 15kW high output, ideal for 48V HP Lithium Battery

✔ 85% Overall High Efficiency
Consume far less power from engine and generate far less heat, resulting in substantial fuel savings over the whole life cycle

✔ Superior Idle Output
Extreme low turn-on speed with charging capability of 1000rpm(>2kW) and 1500rpm(>3kW)

✔ Customized Mechanical & Electrical Interfaces
Simplified Plug and Play harness to easy installation and flexible CAN compatibility with RVC, CAN2.0B, J1939 and other protocols

✔ 2 in 1, Motor Integrated with Controller
Compact and lightweight design, no external regulator required

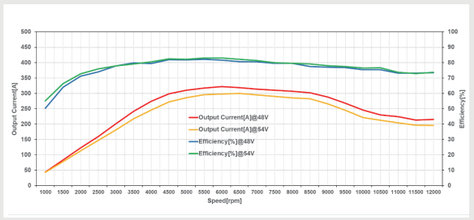
✔ Comprehensive Diagnosis & Protection
Voltage and Current monitor & protection, Thermal monitor & derating, Load dump protection and etc.

✔ Fully Software Controllable
Support both Continuously Adjustable Voltage Closed Loop Control and Current Limitation Closed Loop Control for safe battery charging system

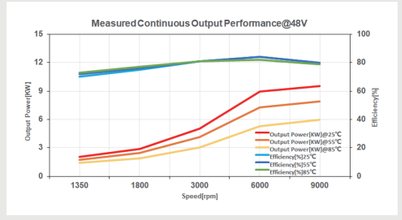
✔ Dedicated Drivability Performance Improvement
Software-defined Slew Rate of charging power ramp up & down for smooth drivability, Software-defined Adaptive Idle of charging power reduce for preventing engine stall

✔ All Automotive Grade
Rigorous and strictest design, testing and manufacturing standard to ensure high quality

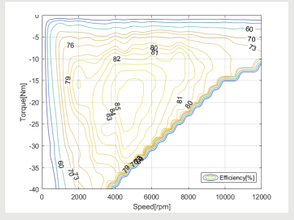
Output Curves



Measured Maximum Output Performance@48V&54V



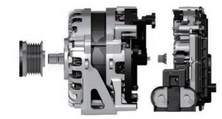
Measured Continuous Output Performance@48V

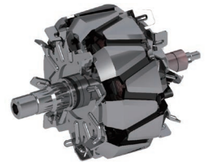


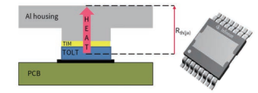
Measured Overall Efficiency@48V

Features

- **HESM Technology (Hybrid Excitation Synchronous Motor):**
  Excitation winding rotor with 16 pieces permanent magnets inserted, improve high output and efficiency;
- **Advanced Hairpin Winding**
  Increase the slot fill factor of stator and the power density 1.65kW/Kg;
- **Asymmetric Dual Three-Phase Stator**
  Eliminate the 5^{th} and 7^{th} harmonic magnetoelectric potentials and decrease outputtorque ripple and optimize NVH performance;
- **Dual Internal Fan**
  Low noise fan design improves external heat dissipation;
- **All Chips Automobile AEC-Q101 & Q200 Qualified**
  Infineon TriCore MCU, Multi-core SW architecture,10KHz frequence, faster and more stable, control respond time less than 150ms, control accuracy ±5%;
- **Multiple Physical Sensors**
  7x Current sampling, 8x Voltage sampling, 1x Rotating motor position sampling, 9x Temperature sampling sensors for higher control accuracy and safer protection;
- **Leading SVPWM Control Algorithm**
  FOC control algorithm combined with MTPA control technology provides higher control efficiency and accuracy, lower torque ripple of system;
- **12 Pieces Infineon's Modern Topside-Cooled TOLT MOSFETs @80V350A**
  The TOLT package offers a supreme thermal performance and an improved electrical performance;







Specification

Model	BLM4815	BLM4810A	BLM4810M
Operation Voltage	24-60V	24-60V	24-60V
Rated Voltage	51.2V for 16s LFP, 44.8V for 14s LFP	51.2V for 16s LFP, 44.8V for 14s LFP	51.2V for 16s LFP
Operating Temperature	-40℃~105℃	-40℃~105℃	-40℃~105℃
Max Output	300A@48V	240A@48V	240A@48V, Customer Specific 120A
Rated Power	8.9 KW @ 25℃,6000RPM 7.3 KW @ 55℃,6000RPM 5.3 KW @ 85℃,6000RPM	8.0 KW @ 25℃,6000RPM 6.6 KW @ 55℃,6000RPM 4.9 KW @ 85℃,6000RPM	6.9 KW@ 25℃,6000RPM Customer Specific 6.6 KW @ 55℃,6000RPM 4.9 KW @ 85℃,6000RPM
Turn-on Speed	500 RPM; 40A@10000RPM; 80A@1500RPM at 48V	500 RPM; 35A@1000RPM; 70A@1500RPM at 48V	500 RPM; Customer Specific 40A@1800RPM
Maximum Speed	16000 RPM Continuous, 18000 RPM Intermittent	16000 RPM Continuous, 18000 RPM Intermittent	16000 RPM Continuous, 18000 RPM Intermittent
CAN Communication Protocol	Customer Specific; eg.CAN2.0B 500kbpsor J1939 250kbps "Blind mode wo CAN" supported	Customer Specific; eg. CAN2.0B 500kbps or J1939 250kbps "Blind mode wo CAN" supported	RVC, BAUD 250kbps
Operation Mode	Continuously Adjustable Voltage setpoint& Current limitation	Continuously Adjustable Voltage setpoint & Current limitation	Continuously Adjustable Voltage setpoint& Current limitation
Temperature Protection	Yes	Yes	Yes
Voltage Protection	Yes with Loaddump Protection	Yes with Loaddump Protection	Yes with Loaddump Protection
Weight	9 KG	7.7 KG	7.3 KG
Dimension	164 L x 150 D mm	156 L x 150 D mm	156 L x 150 D mm
Overal Efficiency	max 85%	max 85%	max 85%
Cooling	Internal Dual Fans	Internal Dual Fans	Internal Dual Fans
Rotation	Clockwise/ Counter Clockwise	Clockwise	Clockwise
Pulley	Customer Specific	50mm Overunning Alternator Pulley; Customer Specific Supported	50mm Overunning Alternator Pulley
Mounting	Pad Mount	Mercedes SPRINTER-N62 OE bracket	Mercedes SPRINTER-N62 OE bracket
Case Construction	Cast Aluminum Alloy	Cast Aluminum Alloy	Cast Magnesium Alloy
Connector	MOLEX 0.64 USCAR CONNECTOR SEALED	MOLEX 0.64 USCAR CONNECTOR SEALED	MOLEX 0.64 USCAR CONNECTOR SEALED
Isolation Level	H	H	H
IP Level	Motor: IP25, Inverter: IP69K	Motor: IP25, Inverter: IP69K	Motor: IP25, Inverter: IP69K

sales@roypow.com, sales@ultradrivetech.com www.roypow.com